

Enhancing Human Development through Space Education: Attempts by JAXA Space Education Center

**Presentation by Space Education Center
Japan Aerospace Exploration Agency (JAXA)**

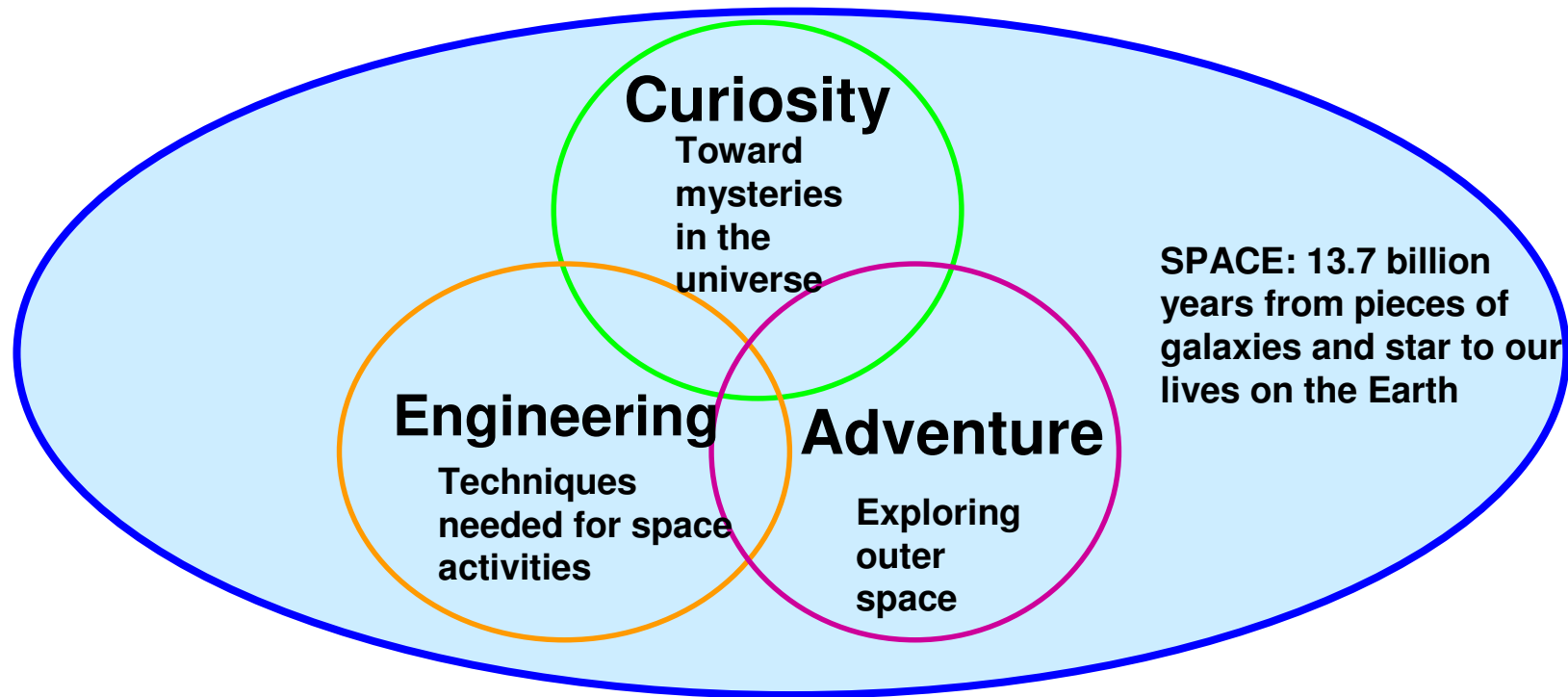
**Fiftieth Session of the
Committee on the Peaceful Uses of Outer Space
*13 June 2007, Vienna***

Principles of the Space Education Center

1. Enhance the understanding of the thinking process behind the knowledge
 - Importance of life
2. Increase the appreciation of “Science ” and “ Technology ”
 - Spirit of “Never Give Up”
3. Increase the awareness of the importance of “ building a prosperous future ” together
 - Acting as a responsible member of the society

WORKING ON CHILDREN'S MINDS

“SPACE = Unique source of interest, imagination & inspiration.”



Space
Education



Stimulating children's curiosity
toward the nature, universe and life
while stressing the importance of
life



Human
Development
with Space at
its Core

EDUCATION SUPPORT:

Working Closely with School Teachers

- ✓ **Teachers as our main collaborators**
- ✓ **Types of support :**
 - A) Direct, customized support:**
 - ① **Developing teaching and learning materials**
 - ② **Supporting classroom activities**
 - ③ **Sending experts to the classrooms**
 - B) Disseminate introductory educational materials for use in the regular curriculum**
- ✓ **From kindergartens to high schools**

Education Support: Examples



**“Space Kitchen Kagoshima” Project:
Yamashita Elementary School**



**Making rockets together:
Wakayagi Kindergarten**

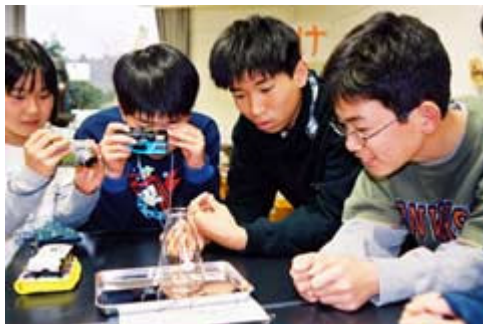


**Tripartite video-onference:
3 elementary schools in
Uchinoura and Kagoshima**

Hands-on Activities : Cosmic College

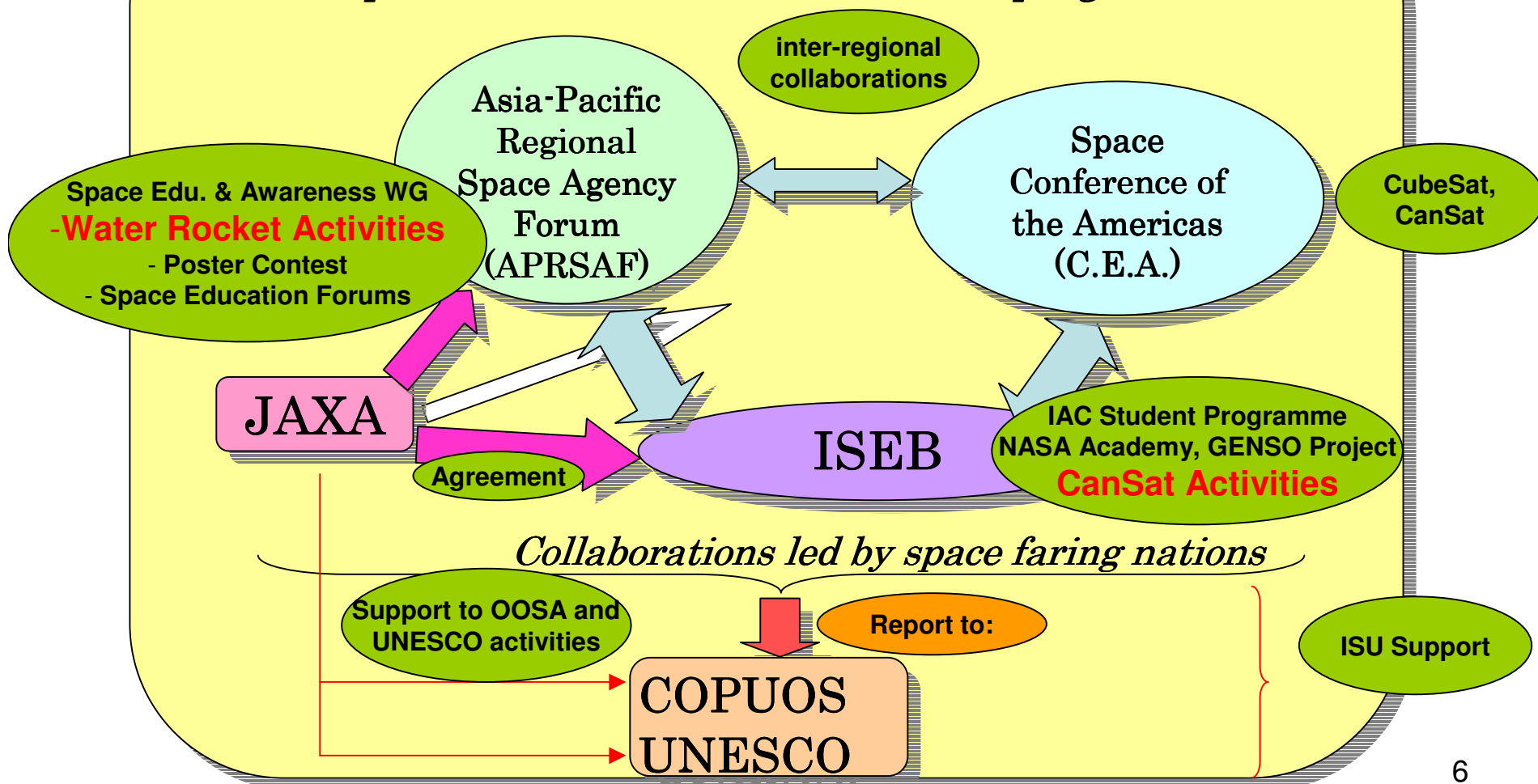


- To increase interest in science & technology
- To help form groups of young people fond of science and technology
- To guide young people to think and solve questions by themselves
- To encourage collaborations with others
- To lead young people to appreciate the importance of life



Collaborations through existing framework for space cooperation

Cooperation for the benefit of developing countries



Global Framework for cooperation: International Space Education Board

- ☆ **Current membership: CNES, CSA, ESA, JAXA, NASA**
- ☆ **Established in October 2005 to:**
 - i) To increase science, technology, engineering and mathematics literacy achievement in connection with space;
 - ii) To support the future workforce needs of space programs
- ☆ **Joint projects:**
 - i) Student participation programmes: IAC & COSPAR Assembly
 - ii) Global Education Network for Satellite Operations
 - iii) **CanSat activities**
 - iv) International Participation in NASA Academy
 - v) Delta Research School Project



Global Framework for cooperation: working with entities of the United Nations system

- ☆ United Nations Office for Outer Space Affairs
- ☆ United Nations Educational, Science and Cultural Organization (UNESCO)
- ✓ Space education activities in multiple cities in Colombia (Nov.-Dec.05), Vietnam (Mar.06) and Ecuador (May 07)



Regional framework for cooperation: Asia-Pacific Regional Space Agency Forum (APRSAF)

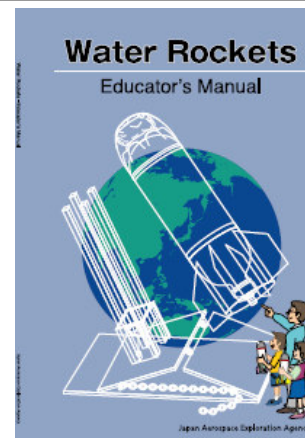
★ APRSAF Space Education and Awareness Working Group

☆ Water Rocket Activities

- ✓ 1st: Kitakyushu, Japan, Oct.05; 2nd: Jakarta, Indonesia, Dec.06;
3rd (planned): Bangalore, India, Nov.07
- ✓ Participating countries: Australia, Cambodia, China, India, Indonesia, Japan, Malaysia, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand, Vietnam
- ✓ Educator's Manual and DVD for water rocket activities: network of educators and teachers for water rocket activities

☆ Poster Contest

- ✓ 1st Contest: Theme "Importance of Space", Jakarta, Indonesia, Dec.06
- ✓ 2nd Contest (plan): Theme "50 Years in Space", Bangalore, India, Nov.07



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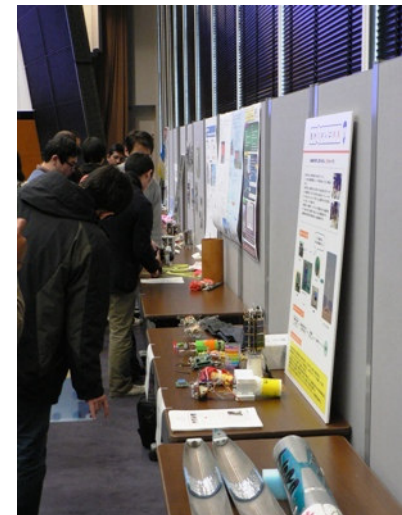
★ Promoting space education activities through APRSAF Space Education and Awareness Working Group (Continued)

☆ Space Education Forums/Seminars (co-organized with UNESCO)

- ✓ March 2006: Hanoi, Vietnam (for school teachers and students)
- ✓ December 2006: Jakarta, Indonesia (for school teachers)

☆ CanSat Activities (for university students)

- ✓ International CanSat Workshop: February 2007, Tokyo, Japan
 - Recommendation: Organize an APRSAF training seminar for trainers of CanSat activities in Asia and the Pacific (2008?)



Regional framework for cooperation: Outside Asia and the Pacific

★ Through regional mechanisms for space cooperation

- ☆ Europe: ESA-Japan Annual Meeting

- ☆ Latin America & the Caribbean: Space Conference of the Americas (CEA)

 - Support hands-on activities, e.g. water rocket activities

 - Assist in linking interested entities in Latin America with Japanese universities (e.g. CanSat and Cubesat development and experiments)

★ Through regional projects of Japanese development agencies

- ☆ Africa: through a project of Japan International Cooperation Center

 - Introductory session on space education (Sep'06) for science teachers (8 countries: Kenya, Gambia, Ghana, Malawi, Namibia, South Africa, Tanzania and Uganda)



Creating synergies among global and regional initiatives

• CanSat Activities

- Joint activity of ISEB
 - Introduced at APRSAF
 - Introduced at V CEA



• Water Rocket Activities

- Introduced at APRSAF
 - Joint annual event of APRSAF
 - Introduced in Latin America thru. UNESCO Space Camps and V CEA



• Poster Contest

- Regional initiative of APRSAF
 - Contribution to global activity, World Space Week

Approaches to promote space education through collaborations

- **Formal education**
 - **Curriculum:** integrating space-related subjects into the existing curriculum or classroom activities
 - Development and dissemination of education materials (e.g. Guidebook on introductory education materials)
 - **National pilot projects:** integrating space education activities or programs at selected schools as pilot projects
 - Need strong support from the ministries responsible for education (e.g. Super Science High-schools; Science Partnership Programs)
- **Informal education**
 - **On-site, hands-on activities:** organizing events after school hours or over the weekends
 - Development of programmes, teaching methods and education materials
 - Importance of responding to interests of local communities:
Local communities should take initiatives!
 - Focus on training trainers and instructors for hands-on space activities
 - **Home activities:** supporting supplementary activities at home
 - Development of programmes and materials for use at home

More effective to pursue both approaches at the same time!

Space Education Efforts of JAXA for Human Development

- **Human development: at the societal level and the individual level**
 - **Balancing the focus of efforts between the prosperity of the society and the enrichment of individual human beings**
- **Establishing a network of space education efforts**
 - **Coalition of forces to use space materials to assist young people to lead lives that are full of happiness and joy of living**



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